

Of Mutual Interest

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Solutions for Our Service Center Marketing Partners from Outokumpu

OUTOKUMPU

Bio-Fuel Industry Discovers LDX 2101®

They are the most visible part of an ethanol plant: enormous pairs of stainless steel outdoor standing structures, called fermentation tanks.



LDX 2101 is being used in fermentation tanks at this bio-fuel facility in Lima, Ohio.

“Fermentation is a very sensitive area in the bio-fuel process,” said Elisabeth Torsner, Outokumpu's Vice President Market Development/Technical Coordinator. “The tanks have to be perfectly clean. If the yeast cultures inside the tanks are disturbed, then the desired result — ethanol — will not occur,” she noted.

Gortech also recently purchased LDX 2101 for pressure vessel tanks. “Every type of large tank can benefit from the weight reduction capability of LDX 2101, which has twice the strength of 304,” pointed out Ms. Torsner. With its low nickel content, corrosion resistance, and gauge reduction properties, LDX 2101 is becoming attractive to design engineers in a number of sectors, including bio-fuels. This continues a trend already underway of stainless steel replacing carbon steel for tank construction because of the decreased maintenance costs and material savings derived from the use of stainless.

In addition to fermentation tanks and pressure vessels, the bio-fuel production process also benefits from the use of stainless steel in distillation columns, which are susceptible to stress corrosion cracking.

Global Inroads to Bio-Fuel Markets

LDX 2101 is making inroads into bio-fuel plants not just in North America, but around the world. The Swedish company, Agroetanol AB, recently expanded one of its major ethanol plants to increase production by some 60 million gallons a year. In addition to

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Outokumpu is an international stainless steel company. Our vision is to be the undisputed number one in stainless, with success based on operational excellence. Customers in a wide range of industries — from the process industry and industrial machinery to building, construction and transportation, electronics and information technology, as well as catering and households — use our stainless steel and services worldwide. We are dedicated to helping our customers gain competitive advantage.

Until recently fermentation tanks were primarily constructed from stainless grade 304 in coil. Now, Outokumpu's proprietary LDX 2101® has been used for fermentation tanks — a first-time application for this lean duplex. The tanks were built at an ethanol plant under construction by Greater Ohio Ethanol in Lima, Ohio. At full capacity, the plant will annually convert 20 million bushels of corn into 54 million gallons of ethanol. The tanks were fabricated by Gortech Global Fabrication, Inc.

Stainless Helps Create “BMW Welt”

Its shape has been described as a “cyclone,” with a stainless steel and glass facade that swirls into a dramatic helical structural support for its floating “Cloud Roof.” More than 500 tons of stainless coil and sheet in 316L and 304 from Outokumpu were used in the construction of “BMW Welt,” the new futuristic showroom near the carmaker’s Munich, Germany headquarters. (In English, the building’s name translates to BMW World.)



Outokumpu stainless 316L and 304 add to the aesthetic and functional appeal of the new BMW Welt in Munich, Germany.

Opened to the public in late 2007, BMW Welt is where car buyers can go to “meet” their new cars, which are displayed on rotating turntables and bathed in colored spotlights. The building also houses a public gallery where BMW will display its complete model range and house restaurants, shops, a private lounge for car buyers and a children’s center where youngsters can learn more about automotive dynamics. BMW Welt is expected to receive 800,000 visitors and deliver 45,000 cars a year. ■



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pipe and fittings from Outokumpu in 304L, Agroetanol is, for the first time, using LDX 2101 sheet and plate in construction of wheat fermentation and storage tanks. Similarly, a bio-diesel and ethanol project in Amsterdam, Netherlands, is using some 1,500 tons of LDX 2101, as well as 500 tons of grade 2304. And LDX 2101 has been specified for fermentation and storage tanks in bio-fuel projects in Belgium, France and Australia.

Stainless: A Solution to Bio-Fuels Transport

Beyond tanks and storage vessels, stainless may have additional applications in the bio-fuel industry. Stainless may be an answer to a major challenge facing the industry — transporting bio- and other fuels in the nation’s current pipeline structure, which will be the subject of a session at

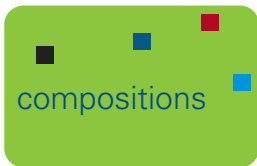
the next NACE Corrosion Conference. “In the U.S. bio-fuel plants are built near the sources of raw material, which right now is the Midwest Corn Belt. But the end-product (fuel) must be transported to customers, who live in large, metropolitan areas like New York and California,” Ms. Torsner reported. “Our current piping structure is very susceptible to stress corrosion cracking and also is subject to humidity from water vapor which adds to pipeline cracking and can also adversely affect ethanol.” Currently the industry uses tanker trucks and specially designed railroad cars to transport bio-fuels, which adds to overall fuel costs. “Someday, in addition to piping, a good many more railroad cars may have to be stainless, as well,” Ms. Torsner predicted. ■

Calculate Tank Thickness Savings On-Line

Specifying engineers can now use the storage tank shell thickness calculator located at the Outokumpu Web site. This tool can be used to estimate the weight saving potential through the use of duplex stainless steel (like LDX 2101) compared to austenitic stainless steel in large storage tanks. To use the calculation tool, go to: <http://www.outokumpu.com/applications/documents/start.asp>.

Quality Stainless Focus of Ad Series

Outokumpu's marketing of stainless steel for 2008 will focus on the "quality stainless" we bring to the marketplace. "Outokumpu is well known for the many innovations and advancements we have developed over the years in stainless steel grades, which continues to this day," noted Maureen Meeker, Outokumpu's Manager, Marketing Communications and Advertising. "By focusing our marketing on our



duplex grades, we will highlight the economical and technical solutions that these grades are bringing to an increasing number of segments in our economy — from old and new sources of energy to construction, and from water projects to a resurging pulp and paper industry."



Outokumpu's trade journal advertising will be directed at engineers, material specifiers and fabricators working in specific target segments in order to increase the understanding and appreciation of the unique properties of stainless steel — and particularly the duplex grades from Outokumpu, such as our new proprietary lean duplex LDX 2101®. ■

A Global Conference and Convention Schedule

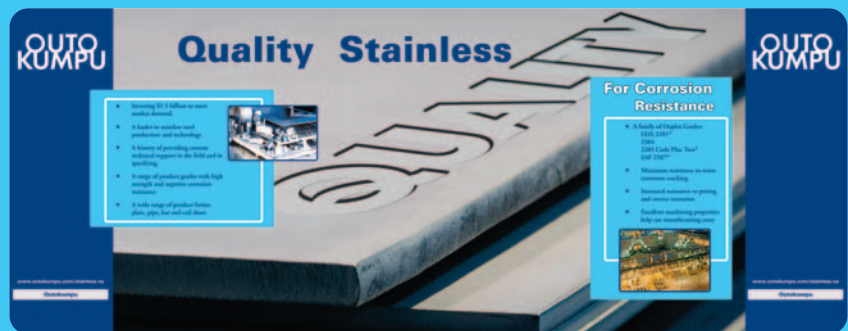
In 2008, Outokumpu is planning a presence at some 20 major international conferences — a record for the company. Global conferences will cover topics from desalination water projects in Asia and offshore oil production in the North Sea to the increasing use of stainless tube and pipe materials and components in India to a conference on comfort and living technology in Milan, Italy.

In the U.S., Outokumpu representatives will be reaching out to stainless steel customers in end-user applications at numerous conferences. These include the NACE Corrosion 2008 Conference & Expo held March 16-20 in New Orleans. At that conference, at



which Outokumpu will be among 350 exhibitors, the company will sponsor a technical session, and present a paper on the corrosion problems that have impacted indoor swimming pools in Europe.

Also scheduled for 2008 are the International Fuel Ethanol Workshop & Expo held June 16-19 in Nashville, Tennessee, at which a technical session on stainless steel is planned; Stainless Steel World America, September 9-10 in Houston, Texas, at which Outokumpu metallurgists will present four papers; and a desalination conference in July at which a session will be held on Outokumpu's significant overseas experience in the field. ■



The North American Outokumpu tradeshow exhibit will be used at six technical conferences in 2008.

Davison Receives Top TAPPI Award

Dr. Ralph Davison, President and Principal of TMR Stainless, Inc., was named the recipient of the Dennis M. Anliker Award from TAPPI, for meritorious contributions to the advancement of corrosion and materials science in the Pulp & Paper industry. (Dr. Davison and his firm TMR serve as technical consultants to Outokumpu.) TAPPI was founded in 1915 as the Technical Association of the Pulp and Paper Industry. The award, which is not annual and may not be awarded in any given year, was initiated in 1983 and named in honor of the corrosion engineer Dennis Anliker in 1989, following his untimely death.



Ralph Davison

Over the past 30 years, Dr. Davison has helped introduce a number of special

grades that have addressed corrosion problems in the pulp and paper industry, among others. Most recently Davison was involved in the development of Outokumpu's lean duplex, LDX 2101®. "I've tried to bring new materials to the industry and show how they can be used," Dr. Davison said. "Pulp and Paper is a very innovative and very aware industry," he noted.

A New Grade For Pulp & Paper

The wet, chloride-filled environment of the Pulp and Paper industry has always posed special material challenges for manufacturers. "There was a time when 316 did everything in the industry — it hit the limits of corrosion," Davison recalled.

"But companies are always looking to do things better, faster and more efficiently, and the effects of corrosion

are costly and time consuming." When introducing a new grade to an industry, such as recently with LDX 2101, Dr. Davison noted that the new grade is



often first used in applications that require frequent maintenance before companies take a chance on using a new grade on a large structure. "A customer will use it because they need it the first time, and then they use it because it works." The world's first industrial-scale pressure vessel built entirely out of LDX 2101 plate was recently completed for a hydrogen peroxide reactor for a member of the Pulp and Paper industry — the Swedish company, Smurfit Kappa Kraftliner Piteå, Europe's largest producer of high-quality corrugated containerboard. LDX 2101 provides much higher resistance to alkaline stress corrosion, in addition to its strength and low-nickel content. ■

New Executive VP of Tubular Products Named

Paul Carpenter has been appointed Executive Vice President of Outokumpu Stainless Tubular Products, with overall responsibility for operations, marketing and management of our Tubular Products business unit located in Wildwood, Florida.

Carpenter has been with Outokumpu for 22 years, and previously served as Vice President, Operations. He replaces Joe Avento, who will retire but continue to work as a marketing consultant for the tubular products business.

In addition, Roy Harrison will replace Carpenter as Vice President, Operations. Harrison, who has been a Plant Manager for the past 10 years, will be responsible for the implementation of strategic planning initiatives at Wildwood. ■



Paul Carpenter